

An Expert System for Counseling patients to Stop Smoking.

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BACKGROUND: Despite the Surgeon General's warning almost 25 years ago, smoking remains the number one cause of preventable morbidity and mortality in the USA. The major clinical approach to this problem, counseling of smokers to quit by physicians, has repeatedly been found to be effective and cost-effective yet is underutilized. Several authors have created and studied computer programs designed to counsel smokers to quit, many of which have been found to be efficacious but have yet to gain popular use due. This is due to several limitations; the programs are resource intensive (questionnaires sent to patients and results scanned or key entered into the program), run the risk of creating too much work for the office staff, and fail to involve the clinician. Wagner, et al. concluded that "a more optimal approach may be to explore better ways of integrating minimal interventions with existing face-to-face contacts in such settings as a health care delivery system" (1).

PROGRAM DESIGN: To address these deficiencies we created Robust Smoking Expert © using the authoring program Toolbook 2 (Instructor) ® from Asymetrix, Inc. It runs on a Windows™ platform and can easily be translated to HTML. It consists of 55 screens containing either questions or hidden text fields. The number of screens seen by each user depends largely upon smoking status and readiness to change; nonsmokers finish after only 7 questions. The major differences of this system from previous ones include: 1) patients interface directly with the system, 2) the program is designed to be part of the routine clinical care of the office (used just prior to the physician visit), 3) minimal work is created for office staff, 4) symptoms and medical history are incorporated into counseling, 5) the physician receives a report to assist in counseling the patient, and 6) equipment costs are minimal.

PROGRAM PERFORMANCE: Users are asked about their smoking habit ("cigarettes per day", etc.), risk factors for smoking related illness (diabetes, etc.), triggers for smoking ("when I am drinking alcohol", etc.), barriers to quitting

("I am afraid of gaining weight when I quit", etc.), risk factors for failing cessation (problem drinking, etc.), and the stage of readiness to quit (precontemplation, etc.). From these answers, text fields are combined to create one of over a billion different patient reports. These reports, based on a review of current medical and psychological literature, contain tailored messages and self-cessation techniques, including nicotine replacement. The physician report summarizes the history and provides a guide for brief counseling based on the Agency for Health Care Policy and Research Smoking Cessation Guidelines.

EVALUATION: A sample of unpaid volunteer smokers (n=30) were recruited for a "pilot study." Demographics included: 1) average age (41); 2) Race: African-American (57%), Caucasian (37%), 3) Sex: female (77%), 4) average level of education: "some college but no degree" 5) stage of change: precontemplators (5%), contemplators (32%), preparation (63%). Average time to completion was 7.2 minutes, and the reports averaged 5 pages in length. Ninety-three percent found the program to be "very easy" to use and 80% felt that it was a "valuable tool" for patients to use. All but 3% would "like your doctor's office to have this program available for you to use."

CONCLUSION: Further studies will focus on the program's efficacy as well as acceptance by physicians, clinical staff, and unselected patients. If the program is able to increase the quit rate by at least 1-2% vs. usual care, it will prove to be cost-effective, given its extremely low per-user cost.

References

1. Wagner EH, Curry SJ, McBride C, et al., A Randomized Trial of Self-Help Materials, Personalized Feedback, and Telephone Counseling with Nonvolunteer Smokers. *Journal of Consulting and Clinical Psychology* 1995;63:1005-1014.